WHAT IS CLAIMED IS:

1. An encapsulant composition, including an encapsulant base at least partially filled with filler particles, at least some of the filler particles being electrically conductive.

2. The encapsulant composition of claim 1, wherein all of the filler particles are electrically conductive.

3. The encapsulant composition of claim 2, wherein the filler particles do not exceed 30% by volume of the composition.

4. The encapsulant composition of claim 3, wherein the filler particles constitute at least 10% by volume of the composition.

5. The encapsulant composition of claim 1, wherein the filler particles include non-conductive particles and conductive particles.

6. The encapsulant composition of claim 5, wherein the non-conductive particles do not exceed 50% by volume of the composition and the conductive particles do not exceed 30% by volume of the composition.

7. The encapsulant composition of claim 6, wherein the non-conductive particles do not exceed 40% by volume of the composition.

8. The encapsulant composition of claim 7, wherein the non-conductive particles constitute at least 20% by volume of the composition, and the conductive particles constitute at least 10% and not more than 20% by volume of the composition.

9. The encapsulant composition of claim 5, wherein at least some of the non-conductive particles are substantially larger than all of the conductive particles.

10. The encapsulant composition of claim 9, wherein:

the non-conductive particles constitute at least 20% and not more than 40% by volume of the composition;

the conductive particles constitute at least 10% and not more than 20% by volume of the composition;

the non-conductive particles are formed of silica;

the conductive particles are formed of one of: (a) a tin-based solder, (b) silver and (c) aluminum; and

the encapsulant base includes diglycidylether of bisphenol F and methylhexahydrophthalic anhydride.

11. The encapsulant composition of claim 5, wherein:

the non-conductive particles include one or more of silica, alumina and boron nitride; and

the conductive particles include at least one of: copper, silver, aluminum, gold, platinum, palladium, beryllium, rhodium, nickel, cobalt, iron, molybdenum, tin, lead, chromium, zinc, magnesium, titanium, bismuth, cadmium, gallium, indium, mercury, antimony, scandium and polonium.

12. The encapsulant composition of claim 11, wherein the conductive particles are formed of a metal alloy or a solder alloy.

13. The encapsulant composition of claim 11, wherein:

the non-conductive particles are formed of silica; and

the conductive particles are formed of one of: a tin-based solder, silver and aluminum.

14. The encapsulant composition of claim 1, wherein at least some of the filler particles include at least one of: copper, silver, aluminum, gold, platinum, palladium, beryllium, rhodium, nickel, cobalt, iron, molybdenum, tin, lead, chromium, zinc, magnesium, titanium, bismuth, cadmium, gallium, indium, mercury, antimony, scandium and polonium.

15. The encapsulant composition of claim 14, wherein at least some of the filler particles are formed of a metal alloy or a solder alloy.

16. The encapsulant composition of claim 14, wherein at least some of the filler particles are formed of one of: a tin-based solder, silver and aluminum.

17. The encapsulant composition of claim 1, wherein the encapsulant base includes an epoxy resin and an anhydride hardening agent.

18. The encapsulant composition of claim 1, wherein at least some of the filler particles are formed of an electrically conductive material with a non-conductive coating.

19. A method comprising:

providing a composition which includes a base at least partially filled with filler particles, at least some of the filler particles being electrically conductive; and

applying the composition as an underfill composition.

20. The method of claim 19, wherein all of the filler particles are electrically conductive.

21. The method of claim 20, wherein the filler particles do not exceed 30% by volume of the composition.

22. The method of claim 21, wherein the filler particles constitute at least 10% by volume of the composition.

23. The method of claim 19, wherein the filler particles include non-conductive particles and conductive particles.

24. The method of claim 23, wherein the non-conductive particles do not exceed 50% by volume of the composition and the conductive particles do not exceed 30% by volume of the composition.

25. The method of claim 24, wherein the non-conductive particles do not exceed 40% by volume of the composition.

26. The method of claim 25, wherein the non-conductive particles constitute at least 20% by volume of the composition, and the conductive particles constitute at least 10% and not more than 20% by volume of the composition.

27. The method of claim 23, wherein at least some of the non-conductive particles are substantially larger than all of the conductive particles.

28. The method of claim 27, wherein:

the non-conductive particles constitute at least 20% and not more than 40% by volume of the composition;

the conductive particles constitute at least 10% and not more than 20% by volume of the composition;

the non-conductive particles are formed of silica;

the conductive particles are formed of one of: (a) a tin-based solder, (b) silver and (c) aluminum; and

the base includes diglycidylether of bisphenol F and methylhexahydrophthalic anhydride.

29. The method of claim 23, wherein:

the non-conductive particles include one or more of silica, alumina and boron nitride; and

the conductive particles include at least one of: copper, silver, aluminum, gold, platinum, palladium, beryllium, rhodium, nickel, cobalt, iron, molybdenum, tin, lead, chromium, zinc, magnesium, titanium, bismuth, cadmium, gallium, indium, mercury, antimony, scandium and polonium.

30. The method of claim 29, wherein the conductive particles are formed of a metal alloy or a solder alloy:

31. The method of claim 29, wherein:

the non-conductive particles are formed of silica; and

the conductive particles are formed of one of: a tin-based solder, silver and aluminum.

32. The method of claim 19, wherein at least some of the filler particles include at least one of: copper, silver, aluminum, gold, platinum, palladium, beryllium, rhodium, nickel, cobalt, iron, molybdenum, tin, lead, chromium, zinc, magnesium, titanium, bismuth, cadmium, gallium, indium, mercury, antimony, scandium and polonium.

33. The method of claim 32, wherein at least some of the filler particles are formed of a metal alloy or a solder alloy.

34. The method of claim 32, wherein at least some of the filler particles are formed of one of: a tin-based solder, silver and aluminum.

35. The method of claim 19, wherein the base includes an epoxy resin and an anhydride hardening agent.

36. The method of claim 19, wherein at least some of the filler particles are formed of an electrically conductive material with a non-conductive coating.

37. A device comprising:

a substrate having a plurality of solder bumps;

an integrated circuit die having a plurality of connection bumps each bonded to a respective one of the solder bumps; and

an underfill between the substrate and the integrated circuit die, the underfill being at least partially filled with filler particles, at least some of the filler particles being electrically conductive.

38. The device of claim 37, wherein all of the filler particles are electrically conductive.

39. The device of claim 38, wherein the filler particles do not exceed 30% by volume of the underfill.

40. The device of claim 39, wherein the filler particles constitute at least 10% by volume of the underfill.

41. The device of claim 37, wherein the filler particles include non-conductive particles and conductive particles.

42. The device of claim 41, wherein the non-conductive particles do not exceed 50% by volume of the underfill and the conductive particles do not exceed 30% by volume of the underfill.

43. The device of claim 42, wherein the non-conductive particles do not exceed 40% by volume of the underfill.

44. The device of claim 43, wherein the non-conductive particles constitute at least 20% by volume of the underfill, and the conductive particles constitute at least 10% and not more than 20% by volume of the underfill.

45. The device of claim 41, wherein at least some of the non-conductive particles are substantially larger than all of the conductive particles.

46. The device of claim 45, wherein:

the non-conductive particles constitute at least 20% and not more than 40% by volume of the underfill;

the conductive particles constitute at least 10% and not more than 20% by volume of the underfill;

the non-conductive particles are formed of silica;

the conductive particles are formed of one of: (a) a tin-based solder, (b) silver and (c) aluminum; and

the underfill includes diglycidylether of bisphenol F and methylhexahydrophthalic anhydride.

47. The device of claim 41, wherein:

the non-conductive particles include one or more of silica, alumina and boron nitride; and

the conductive particles include at least one of: copper, silver, aluminum, gold, platinum, palladium, beryllium, rhodium, nickel, cobalt, iron, molybdenum, tin, lead, chromium, zinc, magnesium, titanium, bismuth, cadmium, gallium, indium, mercury, antimony, scandium and polonium.

48. The device of claim 47, wherein the conductive particles are formed of a metal alloy or a solder alloy.

49. The device of claim 47, wherein:

the non-conductive particles are formed of silica; and

the conductive particles are formed of one of: a tin-based solder, silver and aluminum.

50. The device of claim 37, wherein at least some of the filler particles include at least one of: copper, silver, aluminum, gold, platinum, palladium, beryllium, rhodium, nickel, cobalt, iron, molybdenum, tin, lead, chromium, zinc, magnesium, titanium, bismuth, cadmium, gallium, indium, mercury, antimony, scandium and polonium.

51. The device of claim 50, wherein at least some of the filler particles are formed of a metal alloy or a solder alloy.

52. The device of claim 50, wherein at least some of the filler particles are formed of one of: a tin-based solder, silver and aluminum.

53. The device of claim 37, wherein the underfill includes an epoxy resin and an anhydride hardening agent.

54. The device of claim 37, wherein at least some of the filler particles are formed of an electrically conductive material with a non-conductive coating.

55. A system comprising:

a die comprising an integrated circuit; and

a chipset in communication with the integrated circuit;

wherein the die comprises a plurality of connection bumps each bonded to a respective one of a plurality of soldier bumps on a substrate, an underfill being present between the substrate and the die, the underfill being at least partially filled with filler particles, at least some of the filler particles being electrically conductive.

56. The system of claim 55, wherein the filler particles include non-conductive particles and conductive particles.

57. The system of claim 56, wherein:

the non-conductive particles constitute at least 20% and not more than 40% by volume of the composition; and

the conductive particles constitute at least 10% and not more than 20% by volume of the composition.